ARTICLES

THE ECB'S NON-STANDARD MEASURES – IMPACT AND PHASING-OUT

The ECB responded to the financial crisis by introducing a number of non-standard monetary policy measures, in addition to lowering its key interest rates. The aim of these non-standard measures was to maintain the transmission mechanism of monetary policy. They were implemented mainly through the existing structure of the operational framework to (i) support funding conditions for banks, in order to enhance the provision of credit to the private sector, and (ii) keep contagion in financial markets contained. Available evidence suggests that the non-standard measures have been effective in their intended aim.

If non-standard measures are maintained for too long, however, they may encourage excessive risk-taking by financial market participants, distort incentives and delay the necessary process of balance sheet adjustment by private and public sector entities. This would ultimately undermine price stability over the medium term, with detrimental effects on economic growth. Therefore, all non-standard measures taken by the ECB were designed to be temporary in nature and complementary to standard interest rate decisions. Given the flexibility permitted by the design of the ECB's operational framework for monetary policy implementation, decisions on the phasing-out of non-standard measures are taken separately from decisions to raise the ECB's key interest rates from their currently very low levels. Their phasing-out will therefore be carried out in line with evidence of a self-sustained normalisation of the functioning of the transmission mechanism. This ensures that the ECB's monetary policy stance can be adjusted in time to counteract risks to price stability over the medium term, while addressing remaining impairments to the transmission mechanism by means of non-standard measures. However, it is crucial that still existing funding strains in specific regions and sectors within the euro area are urgently addressed by governments and regulators.

1 INTRODUCTION

Between October 2008 and May 2009, in view both of the severe financial crisis and of the associated downward risks to price stability over the medium term, the ECB lowered the interest rate on its main refinancing operations by 325 basis points. Obstacles in the transmission process were, however, threatening to prevent this very accommodative stance of monetary policy from being passed on to lending conditions for households and non-financial corporations. Therefore, the ECB also introduced several non-standard measures during the period of acute financial market tensions, with the aim of keeping the transmission of monetary policy operative. This occurred mainly through an easing of banks' funding conditions, in order to support the provision of credit to the private sector, and by containing contagion in financial markets.[1]

In the same way as non-standard measures were introduced during the crisis period to complement changes in policy interest rates in a context of impairments to the transmission mechanism, the phasing-out of non-standard measures can occur independently from adjustments of the policy stance via interest rate changes in a context of a progressive healing of the transmission mechanism. In particular, non-standard measures will be phased out in line with self-sustained improvements in previously impaired transmission channels and a normalising pass-through of the monetary policy stance. Ultimately, all ECB measures are guided by its mandate to maintain price stability.

Section 2 briefly discusses the main impairments imposed by the financial crisis on the monetary policy transmission process and recalls the non-standard measures taken in response to these developments. It also provides some evidence on their effectiveness in restoring a more normal functioning of the transmission of monetary policy. In doing so, it has to be taken into account that such an assessment can only

1 A detailed description of the ECB's response can be found in "The ECB's response to the financial crisis", *Monthly Bulletin*, ECB, October 2010, and in "The implementation of monetary policy since August 2007", *Monthly Bulletin*, ECB, July 2009.

be preliminary in character, and that more data and analysis will be required for a thorough evaluation. Section 3 discusses considerations regarding the phasing-out of the non-standard measures, while Section 4 highlights some lessons learned from current experience with non-standard monetary policy measures and concludes.[2]

2 NON-STANDARD MEASURES AND THEIR EFFECTIVENESS

2.1 IMPAIRMENTS TO THE TRANSMISSION PROCESS

The financial crisis has imposed severe strains on all the channels of monetary policy transmission through which ECB's interest rate decisions are normally transmitted to the economy and, ultimately, prices.[3]

First, in normal circumstances, with a well-functioning financial intermediation process through the banking sector and financial markets, the signals embodied in the official interest rates are transmitted smoothly to the short-term money market rates, and thereby to the longer-maturity rates that are most relevant for private sector decision-taking (what is known as the "interest rate channel").[4] The financial crisis impaired the pass-through from official interest rates to money market rates and other market and bank interest rates, and the pass-through was affected further by the sovereign debt crisis. As government bond yields can act as a determinant for the pricing of other assets, a severe disruption of the government bond market can alter the transmission mechanism and lead to spillovers and spread contagion to other market segments.

Second, difficulties experienced by banks in accessing funding (including bank capital and liquidity) put pressure on the asset side of banks' balance sheets, increasing the risk of a sharp and abrupt contraction of banks' loan supply (referred to as the "bank lending channel"). In addition, in the context of the sovereign debt crisis, low liquidity in government securities markets added further strain – given the widespread use of these securities as collateral in secured lending – thereby weighing on banks' ability to lend to the private sector.

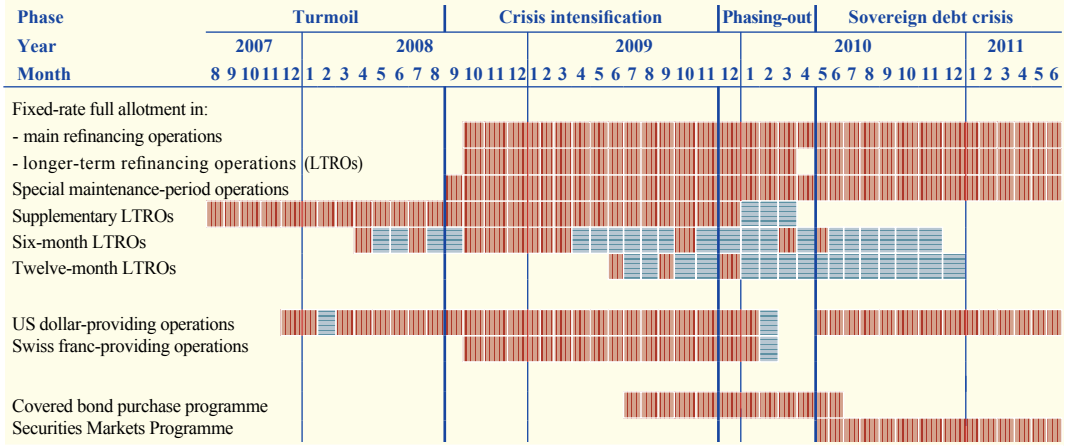
Third, the cyclical downturn, combined with the fall in asset prices, impacted significantly on the balance sheets and creditworthiness of banks' borrowers (referred to as the "balance sheet channel").[5] These effects were exacerbated by the sovereign debt crisis that affected some euro area countries, causing losses in portfolios of financial and non-financial investors, again with the potential to adversely impact on their lending ability.

Finally, large swings in financial intermediaries' and investors' risk perceptions threatened normal access to credit for the purpose of financing entrepreneurial activity in the economy (referred to as the "risk-taking channel"). The excessive risk-taking behaviour in the financial system prior to the crisis changed in the course of the financial crisis into a complete unwillingness of the financial sector to take on any type of risk.

In view of dysfunctional financial markets that impaired the transmission of the monetary policy stance, the ECB introduced a number of non-standard measures to enhance the effectiveness of its monetary policy. Given that the ECB's key rates had not reached the zero lower bound, the non-standard measures were not a substitute for further interest rate cuts

2 The cut-off date for data used in this article was 14 June 2011.
3 For an in-depth discussion of monetary transmission channels in the euro area, see "Monetary policy transmission in the euro area, a decade after the introduction of the euro", *Monthly Bulletin*, ECB, May 2010, and "The role of banks in the monetary policy transmission mechanism", *Monthly Bulletin*, ECB, August 2008. In addition, *The Monetary Policy of the ECB*, ECB, May 2011, offers an overview of the ECB's monetary policy, including the transmission channels.
4 For more information, see the box entitled "Volatility of the overnight interest rate and its transmission along the money market yield curve", *Monthly Bulletin*, ECB, August 2007.
5 Empirical results provide indications for the bank lending and balance sheet channels to have become more prominent in the period of financial turmoil; see, for instance, "Monetary policy and loan supply", *Monthly Bulletin*, ECB, October 2009.

Chart 1 Chronology of the ECB's non-standard measures from August 2007 to June 2011



Source: ECB.
Notes: The reddish brown bars indicate that operations were conducted in the specific month, while the petrol blue bars indicate that no new operations were conducted but that the liquidity provided in previous operations remained in place. The chart covers the main measures discussed in the text, but does not cover all of them as some are not easy to include, e.g. decisions related to collateral and to fine-tuning operations. Special maintenance-period operations are ECB refinancing operations with a maturity matching the length of the reserve maintenance period.

(see Box 1), but complemented the decisions on interest rates. Chart 1 summarises the non-standard measures that the ECB has introduced in the different phases of the financial crisis.[6] Most of the measures did not require major changes to the operational framework for monetary policy implementation; they were restricted to adjustments of the parameters of the existing framework. The introduction of two securities purchase programmes required more substantial adjustments, as the ECB normally conducts its monetary policy operations through repurchasing agreements.

6 The crisis can be broken down into four distinct phases: financial turmoil (as of 9 August 2007); intensification of the financial crisis (starting with the collapse of Lehman Brothers on 15 September 2008); temporary improvements in financial market conditions with a phasing-out of some non-standard measures (end-2009 and early 2010); and sovereign debt crisis (starting in early May 2010).

Box 1

AN ACADEMIC LOOK AT THE NON-STANDARD MEASURES

Before the financial crisis, the academic debate on non-standard monetary policy measures was closely linked to the zero lower bound problem, which arises when a deep recession and the associated downside risks to price stability warrant a reduction of a central bank's key interest rate to zero. This level represents a lower bound for the nominal interest rate, because any attempt to reduce it further would fail. The public would prefer to hold cash, rather than to lend funds or hold deposits at a negative rate. In a sufficiently deep recession, the zero lower bound on the nominal interest rate limits the ability of the central bank to further reduce real interest rates. A deflationary spiral can ensue as lower aggregate demand generates deflationary expectations, hence higher real rates, and thus further deflationary pressures.

Non-standard measures were traditionally seen as an alternative means of providing monetary policy stimulus once the nominal interest rate had reached zero. For example, "quantitative easing" amounts to inducing large increases in banks' reserves to stimulate banks' demand for more productive assets through portfolio balance effects. Quantitative easing was traditionally seen as ineffective in cases where interest rates are not close to the zero lower bound, because positive interest rates would represent an opportunity cost that discourages banks from holding additional reserves.

In response to the financial crisis, however, many central banks adopted innovative policy measures that had not yet been explicitly studied in the academic literature. New research has therefore been conducted to analyse the desirability of deploying different non-standard measures, depending on economic circumstances. Two key findings have emerged from this ongoing research effort.[1]

One of these key findings is that in cases where central bank reserves are remunerated – as they are in the euro area – changes in banks' reserves can be implemented at any level of the key policy interest rate. The opportunity cost of reserves becomes independent of the interest rate level, and reaching the zero lower bound is no longer a pre-condition for banks to be willing to hold large amounts of reserves. From this perspective, the remuneration of reserves results in a separation between liquidity management decisions and interest rate-setting decisions. Liquidity management can adjust to accommodate reserve demand shocks and key policy interest rates can be set without the need to worry about conditions in the market for reserves.

The second key finding is that other types of non-standard measures than quantitative easing can be warranted when dealing with large impairments to the transmission mechanism. Effectiveness is maximised when non-standard measures are tailored to address the particular impairment observed at a specific point in time. A disturbance which tends to reduce the value of assets uniformly across banks, for example, could be offset by asset purchases to prevent a collapse of lending and an excessive increase in loan rates, or by direct credit provision to the private sector. When heterogeneity amongst banks plays a key role and the interbank market is also impaired – as was the case in the euro area during the crisis – the central bank may instead want to play an intermediation role and provide funds to individual banks according to their needs. Measures such as the lengthening of the maximum maturity of refinancing operations or the extension of the list of assets accepted as collateral can then be instrumental in providing banks with a more stable funding environment and in preventing a collapse in real economic activity and deflationary risks.

Once this perspective of addressing specific market distortions is adopted, non-standard measures can be usefully deployed to reinforce the stance of monetary policy whenever distortions impair its standard transmission mechanism. At the same time, these considerations do not justify the use of non-standard measures under normal circumstances. On the one hand, the benefits of implementing non-standard measures increase with the severity of economic disturbances. On the other hand, non-standard measures also involve costs which will typically exceed their benefits in normal circumstances. These costs may, for example, be in terms of strains induced on central bank operations and the risk exposure of the central bank's balance sheet.

1 See, for example, Cúrdia, V. and Woodford, M., "The Central Bank Balance Sheet as an Instrument of Monetary Policy," *Journal of Monetary Economics*, No 1, 2011, pp. 54-79, and Gertler, M. and Kiyotaki, N., "Financial Intermediation and. Credit Policy in Business Cycle Analysis," in Friedman, B. and Woodford, M. (eds.), *Handbook of Monetary Economics*, Vol. 3A, North Holland, 2010, pp. 547-599.

In the following, the ECB's non-standard measures are categorised by the markets they have primarily been aimed at, namely the money market and the securities markets.

2.2 MONEY MARKET-BASED MEASURES

During the first phase of the crisis that started in August 2007 (labelled "Turmoil" in Chart 1), the main impairment was the malfunctioning of the money market on account of uncertainty about the creditworthiness of counterparties. Banks preferred to "frontload" liquidity at the beginning of the maintenance period so as to reduce uncertainty about their liquidity positions. The ECB accommodated this preference by providing for larger allotment amounts in the main refinancing operations (MROs) at the beginning of the maintenance period, thereby reducing short-term interest rate volatility and maintaining an efficient operational framework in terms of steering the overnight interest rate towards the MRO rate.[7] In addition, a higher relative share of Eurosystem liquidity was allotted via three-month refinancing operations, which lengthened the average maturity of outstanding liquidity and reduced funding uncertainty for banks.[8]

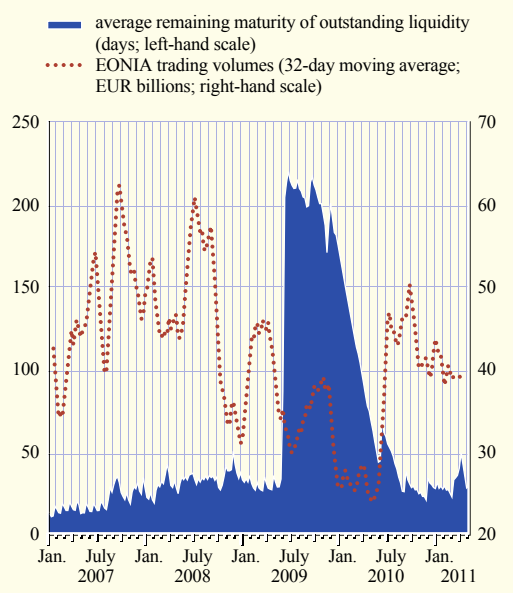
The intensification of the crisis in mid-September 2008 sharply exacerbated money market tensions, with large spreads between the unsecured three-month EURIBOR and the secured three-month overnight index swap rate, and a sharp decline in money market trading activity (see Chart 2). The ECB reacted by directly taking up an intermediation role for the provision of liquidity to individual banks, normally played by the money market, by switching from variable rate tenders to fixed rate tenders with a full allotment of the liquidity demanded by counterparties. Furthermore, the list of eligible collateral was extended in various stages by adjusting the quality thresholds for particular asset classes, thereby enabling banks to take advantage of the fixed rate full-allotment tenders. In this context too, the Eurosystem applies its risk control measures in order to mitigate liquidity market and credit risk.

The ECB also lengthened the maturity of its longer-term refinancing operations (LTROs) to 12 months. This increased the average remaining maturity of outstanding liquidity further from about 20 days before the crisis to 30 days during the initial phase of the financial turmoil, and to

7 For a comprehensive overview of ECB's monetary policy operational framework, see Mercier, P. and Papadia, F., *The concrete euro – how monetary policy operations withstood the crisis*, Oxford University Press, 2011.

8 Measures taken in open market operations in this period and their impact are described in more detail in "The Eurosystem's open market operations during the recent period of financial market volatility", *Monthly Bulletin*, ECB, May 2008.

Chart 2 Average refinancing maturity and trading activity in the money market



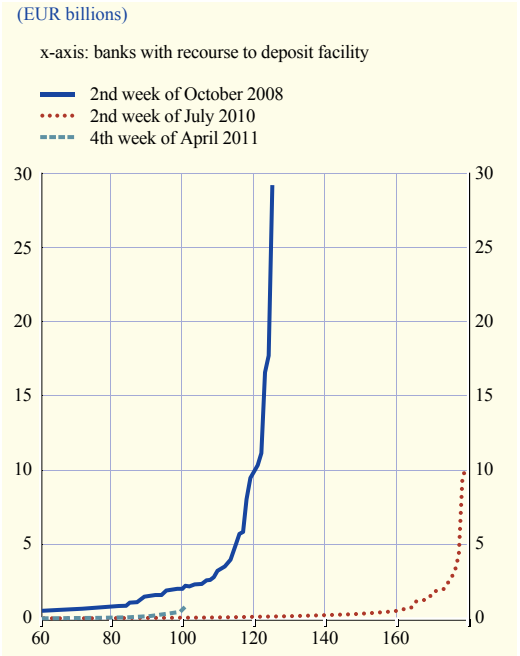
Source: ECB.
Notes: The average remaining maturity is calculated as the mean of the MROs and LTROs up to their respective maturity dates, weighted by the outstanding amount of each operation.

over 200 days in the second half of 2009 when one-year LTROs were in place, before it declined again (see Chart 2). This maturity-lengthening was aimed at providing certainty to banks as regards funding sources for a longer period, thereby allowing the banking system to restore and better plan its activities and to maintain lending to households and non-financial corporations. The one-year LTROs contributed effectively to stabilising money market spreads at levels below those observed during the phase of financial turmoil.[9]

The intensification of the crisis was moreover characterised not only by a high level of uncertainty, but also by heterogeneous behaviour among banks. This is illustrated by the amount and distribution of excess liquidity, proxied by banks' use of the deposit facility, which had been close to nil before the start of the crisis. In the second week of October 2008, however, when fixed rate full-allotment was first in place, the use of the deposit facility by banks increased significantly and heterogeneously (see Chart 3). The contemporaneous very large recourse to refinancing operations and the intensive use of the deposit facility for storing excess liquidity overnight is indicative of the extent to which the money market was dysfunctional. After the expiry of the first one-year LTRO in early July 2010, the overall amount deposited declined, but more banks accessed the deposit facility for lower amounts, on average. In the most recent period covered in Chart 3, the substantially lower amounts placed with the deposit facility and their more equal distribution indicate an improved functioning of the money market.

The full accommodation of the very high demand for liquidity in refinancing operations also caused the overnight interest rate (the EONIA) to fall below the MRO rate (see Chart 4), reflecting excess liquidity in the money market and the extensive use of the deposit facility.

Chart 3 Daily holdings in the deposit facility



Source: ECB.
Note: The amount shown is the weekly average of daily recourse to the deposit facility.

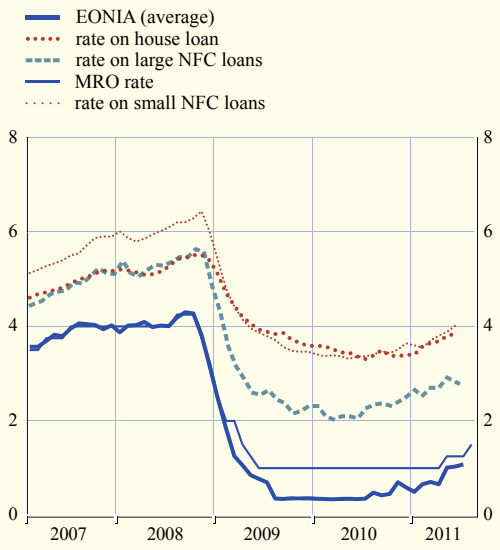
In addition to the above-mentioned measures that concentrated on funding in euro, the ECB also adopted US dollar liquidity-providing operations against ECB-eligible collateral, as well as swaps, to counter difficulties that some internationally active banks experienced in funding in foreign currencies, notably US dollars. Swap tenders involving the Swiss franc were also carried out.

Given the non-standard measures' goal of supporting the normal transmission of the ECB's key interest rates to the economy, developments

9 See Chart 2 in "The ECB's response to the financial crisis", *Monthly Bulletin*, ECB, October 2010. In the phasing-out period, the spread between the three-month EURIBOR and the overnight indexed swap rate stood at around 25 basis points, around half the value reached during the phase of turmoil. In the interim, at the time of the intensification of the crisis, it had peaked at more than 175 basis points.

Chart 4 Evolution of interest rates

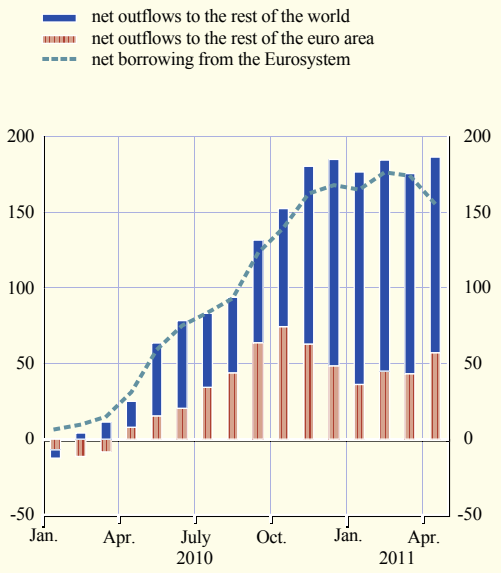
(percentages per annum)



Source: ECB.
Note: The cut-off date for data used in this chart is 7 July 2011.

Chart 5 Net outflows from MFIs in Greece, Ireland and Portugal to the rest of the euro area and the rest of the world, and net borrowing from the Eurosystem

(cumulated flows, seasonally adjusted; EUR billions)



Source: ECB.
Notes: Outflows reflect changes in non-domestic liabilities minus changes in non-domestic assets. Net borrowing refers to borrowing net of use of the deposit facility.

in banks' lending rates and volumes can give an indication of the effectiveness of these measures.[10] Bank lending rates for households and non-financial corporations declined with only a short delay, in parallel to the decline in the EONIA (see Chart 4). As regards bank lending volumes, the level of lending contracted only moderately during the crisis.[11] The analysis presented in Box 2 confirms that during the crisis, lending rates and volumes behaved in a manner consistent with a rather normal functioning of the transmission mechanism, as gauged by historical regularities prior to the financial crisis. These results, though largely indicative, suggest that ECB's non-standard measures have been successful in achieving their intended goal.[12]

More generally, the non-standard measures, together with the support measures for banks introduced by euro area governments, prevented a disorderly deleveraging process. Non-standard measures thus played an important role during the phase marked by the sovereign debt crisis. For instance, the full allotment at fixed rates of the liquidity demanded by the banking sector against an expanded list of collateral helped to stabilise the funding situation of MFIs in the countries hit most severely by the sovereign debt crisis (see Chart 5).

10 For information on the effectiveness of non-standard measures across different central banks, see the presentations of the ECB workshop "The macroeconomic impact of non-standard monetary policy measures" that took place on 24 and 25 March 2011 (available under "conferences" on the ECB's website).

11 See "Recent developments in loans to the private sector", *Monthly Bulletin,* ECB, January 2011.

12 Results from the ECB's quarterly bank lending survey, which analyses the roles of supply and demand factors in loan developments, also indicate that supply constraints were not the main factor behind the low growth of loan volumes.

Box 2

THE EFFECTIVENESS OF NON-STANDARD MEASURES: A MODEL-BASED ASSESSMENT

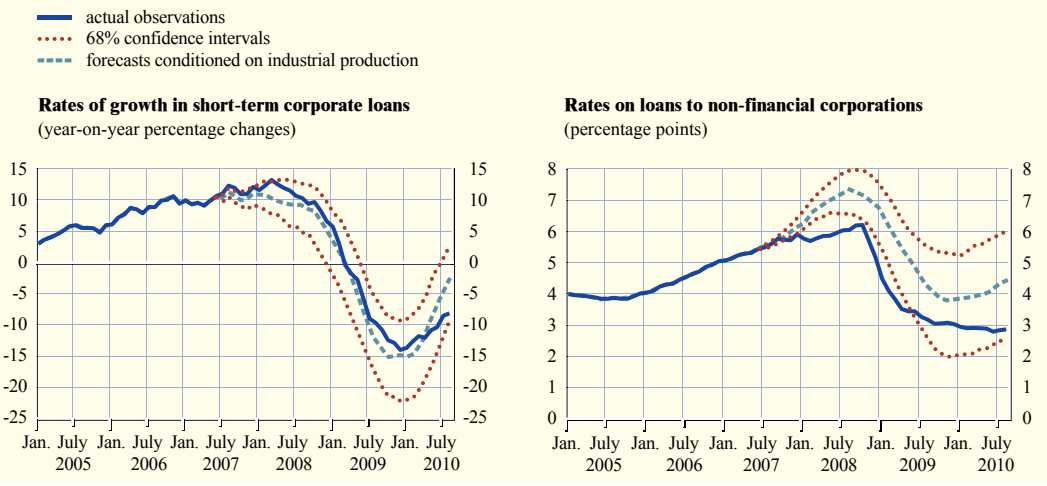
This box describes two analytical approaches for assessing the effectiveness of non-standard measures by addressing the question as to what would have happened if the ECB had not adopted some of its non-standard policy measures after October 2008. On the basis of the model-based exercises, it is found that the measures targeted at the money market were instrumental for stabilising the financial system and the economy, as well as for ensuring price stability.

A first approach answers the question as to whether "pre-crisis" economic regularities between economic variables persisted during the crisis. In this respect, the model developed by Giannone et al.[1] estimates the relationship between 32 variables over the period from 1991 to 2007, including measures of production, inflation, confidence, money and bond yields. For the period following August 2007, the exercise involved a conditional forecast using the actual path of industrial output as the conditioning variable. The remaining series are obtained by applying the formerly estimated pre-crisis regularities. Small differences between the actual observations during the crisis and the simulated series imply that pre-crisis regularities continued to hold during the crisis. As examples of the outcome, Chart A indicates that corporate short-term loan growth responded very much as expected from the pre-crisis episode and that loan rates were even below these regularities, which may have been due to the swift and bold measures taken by the ECB.

Given that the economy broadly followed past regularities, it is possible to test whether this continues to hold true if the non-standard measures had not been taken. The ECB's non-standard measures were aimed at, among others things, improving money market conditions by reducing the spread between the EURIBOR and the rate on the main refinancing operations. The model developed

1 Giannone, D., Lenza, M., Pill, H. and Reichlin, L., "Non-standard monetary policy measures and monetary developments", *Working Paper Series*, No 1290, ECB, January 2011.

Chart A Actual data and model-based conditional forecast

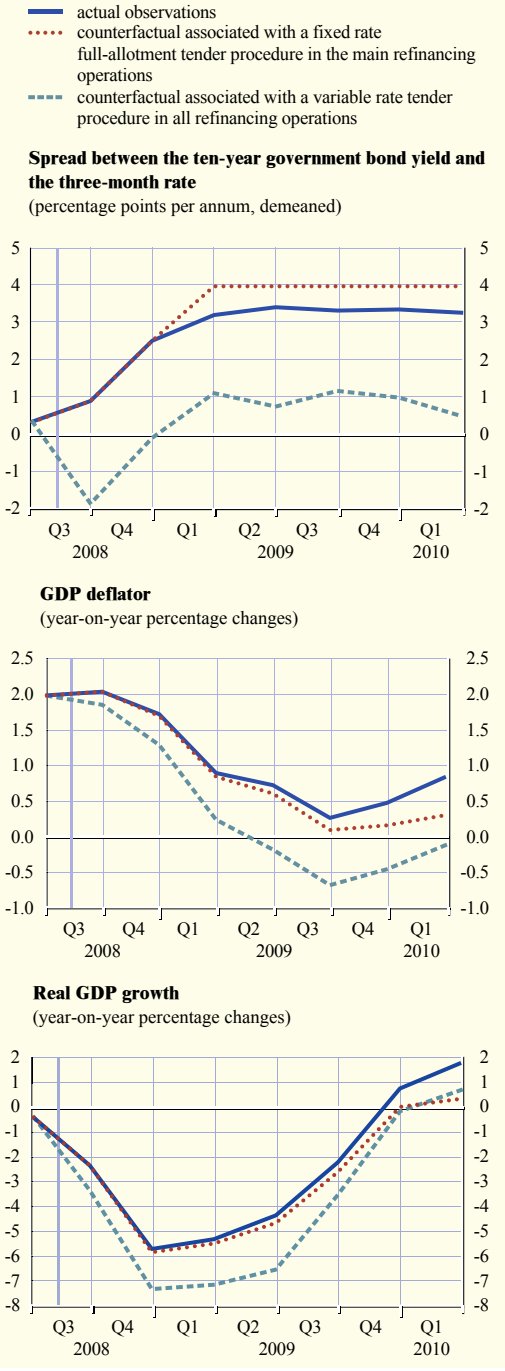


Source: Giannone et al.

by Lenza et al.[2] analyses the implications if this spread had not been reduced, but had instead prevailed for longer. Attributing the difference between the observed time series of economic variables and the model-based simulated paths obtained by applying the estimated regularities of the "pre-crisis" episode to the non-standard measures would suggest that the non-standard measures were very effective. The model finds, for example, that the growth of M1 in 2009 and 2010, as well as the growth of loans for house purchase and consumer credit, would have been substantially lower without non-standard measures.

A second approach focuses on the introduction of liquidity provision through fixed rate full-allotment tender procedures and the lengthening of maximum maturities in refinancing operations from three months to one year in the context of the dynamic stochastic general equilibrium (DSGE) model in Fahr et al.[3] The model is a medium-sized DSGE model, which accounts for varying perceptions of risk and focuses especially on the bank intermediation channel, modelled with liquidity needs of banks and a financial accelerator between banks and firms. To assess the impact of lengthened maturities, the reaction of the ten-year risk-free interest rate to changes of the three-month interest rate under conditions observed before the crisis is compared with that observed during the crisis. Discrepancies in the response of different variables are then attributed to the lengthening of the maturity structure and presented as the difference between the dotted counterfactual line and the solid actual observations line in Chart B. Without the lengthening of maturities the spread between ten-year and three-month interest rates would have been larger (top panel), and domestic inflation (middle panel), as well as output growth (bottom panel), would have turned out lower, mainly because of higher ten-year bond yields.

Chart B Outcome of a model-based counterfactual exercise



Source: Fahr et al.

2 Lenza, M., Pill, H. and Reichlin, L., "Monetary policy in exceptional times", *Economic Policy*, Vol. 62, 2010, pp. 295-339.
3 For technical details, see Fahr, S., Motto, R., Rostagno, M., Smets, F. and Tristani, O., "A monetary policy strategy in good and bad times: lessons from the recent past", *Working Paper Series*, No 1336, ECB, May 2011.

In a second step, the DSGE model addresses the issue of what would have happened if the demand for liquidity in the Eurosystem's liquidity-providing operations had not been satisfied in full at a fixed interest rate.[4] An estimation of the model reveals that before the crisis, greater demand for liquidity by banks led to higher money market rates. Were the same regularities to apply in the absence of fixed rate full allotment during the financial crisis, it is found that the unprecedented increase in the demand for liquidity during the financial crisis would have strongly reduced the spread between ten-year and three-month interest rates, due to higher money market rates (captured by the difference between the dotted and dashed lines in Chart B).[5] This upward pressure on the cost of borrowing and the lack of liquidity would have unleashed a process of severe and abrupt deleveraging by banks. It would have resulted in severe downside risks to price stability and a deeper economic contraction than was actually observed.

4 Liquidity allotment before the financial crisis was set to cover for the minimum reserve requirements by banks and for autonomous factors.

5 The spread in the counterfactual does not consider a possible upper cap for the short-term interest rate induced by the rate of the marginal lending facility.

However, liquidity support is not a substitute for the necessary repair and strengthening of balance sheets, and it cannot – in any case – address solvency problems. Experience from previous episodes of financial and banking crises suggests that the only effective action to resolve a banking crisis is for governments and regulators to intervene swiftly and decisively, whereas the central bank should limit itself to providing liquidity support (see Box 3).

Box 3

POLICY RESPONSES TO BANKING CRISES: THE CASES OF THE NORDIC COUNTRIES AND JAPAN IN THE 1990s

The banking crises in the Nordic countries (Norway, Sweden and Finland) and in Japan in the 1990s suggest that banking problems can only be solved through timely and decisive actions by supervisory authorities and through measures aimed at solving the root causes thereof.

In particular, the experiences in the Nordic countries and in Japan are prominent examples from which lessons can be learned on the effectiveness of various crisis-resolution measures. The Nordic crises were solvency crises in which some financial institutions faced serious loan losses, while the general functioning of the financial markets was not impaired. This needs to be distinguished from the Japanese case, which contained elements of both a solvency crisis (180 deposit-taking institutions failed between 1991 and 2002) and a liquidity crisis with occasionally severe stress in key financial markets.

The two crises differ significantly with respect to the time required to bring the solvency problems under control. In the Nordic case, the regulatory authorities addressed these problems relatively swiftly. The systematic and credible clean-up of troubled banks stabilised the financial system, and the subsequent export-oriented economic recovery further improved the performance of, and the balance sheets within, the banking sector. These experiences stand in contrast to the Japanese crisis, where comprehensive steps to address the problem of troubled banks were only implemented many years after the bursting of the asset price bubble that had triggered the financial crisis. In addition to the unaddressed solvency problems, occasional liquidity problems threatened the smooth functioning of the Japanese financial markets.

The Japanese experience with market-wide liquidity problems suggests that the combination of standard and non-standard monetary policy measures implemented by the Japanese central bank were ultimately relatively successful in preventing liquidity dry-ups in key financial markets. At the same time, such measures have to be distinguished from measures aimed at resolving the underlying solvency issues in Japanese banks that needed to be addressed by other institutions and policies outside the realm of monetary policy.

Both the Nordic and Japanese experiences suggest that dealing with banking problems ultimately required taking measures directed towards specific financial institutions that faced solvency problems and threatened the stability of the financial system as a whole. This involved using a combination of guarantees and capital injections for distressed banks. Distressed assets were removed to dedicated asset management companies (known as "bad banks")[1], with government-sponsored take-overs of weak banks by larger and stronger banks being organised in some cases and with public take-overs (nationalisations) being conducted in the absence of private sector solutions.

1 Norway represents an exception in that no "bad bank" was established to handle financial institutions' problem loans.

2.3 SECURITIES MARKETS-BASED MEASURES

In addition to the measures targeted primarily at the money market, the Eurosystem also intervened directly in some securities markets.

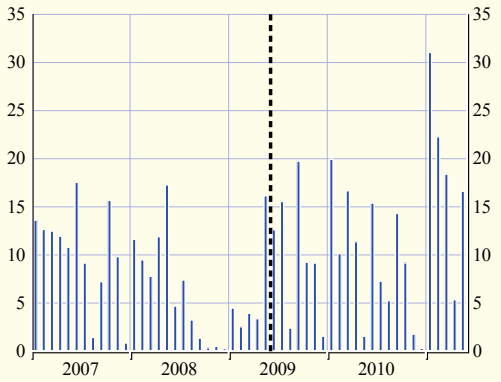
The covered bond purchase programme (CBPP), announced on 7 May 2009, was aimed at encouraging an easing of credit conditions and at improving liquidity in this important market segment, given that the issuance of covered bonds is a primary source of financing for banks in the euro area. Over the 12-month period from 6 July 2009 to 30 June 2010, the Eurosystem made outright purchases of euro-denominated covered bonds issued in the euro area up to the pre-announced total nominal value of €60 billion.

On the primary market, the announcement of the CBPP triggered a reactivation of jumbo covered bond issuance in the euro area, whereby volumes returned to levels observed before the crisis (see Chart 6). The effect on the secondary market was visible in the developments in covered bond spreads around the announcement day (see Chart 7). Most euro area covered bond markets experienced a noticeable reduction in spreads that was induced by the CBPP. While the average daily change in spreads was negligible in the weeks before the event, spreads fell by up to 7 basis points (in the case of German covered bonds) on the announcement day, and declined further at an average pace of 2 basis points per day in the week thereafter. While the announcement of the programme had a significant impact on prices, the actual purchases thereafter had rather limited effects as they were probably seen as an execution of the previously announced commitment.[13]

13 See Beirne, J., Dalitz, L., Ejsing, J., Grothe, M., Manganelli, S., Monar, F., Sahel, B., Sušec, M., Tapking, J. and Vong, T., "The impact of the Eurosystem's covered bond purchase programme on the primary and secondary markets", *Occasional Paper Series*, No 122, ECB, January 2011.

Chart 6 Issuance of jumbo covered bonds in the euro area

(EUR billions)



Source: Dealogic.
Note: The dashed line denotes the date on which the CBPP was announced.

The Securities Markets Programme (SMP) was launched in response to the sovereign debt crisis on 10 May 2010.[14] The programme intends to address the malfunctioning of some securities markets and to improve the transmission mechanism of monetary policy.[15] Under the SMP, public and private debt securities are eligible for purchase. The Eurosystem re-absorbs the liquidity provided through bond purchases by means of weekly liquidity-absorbing operations so as to ensure that the monetary policy stance is not affected.

Assessing the effectiveness of the SMP is complicated on account of the fact that the degree of normalisation of the transmission process operating via bond markets cannot be easily captured by one or a few indicators. Nevertheless, considering the direct effects of the announcement of the SMP and its initial implementation on the bond yields, the ten-year government bond yield spreads vis-à-vis German government bond yields declined substantially across the board on Monday, 10 May (see Chart 8).

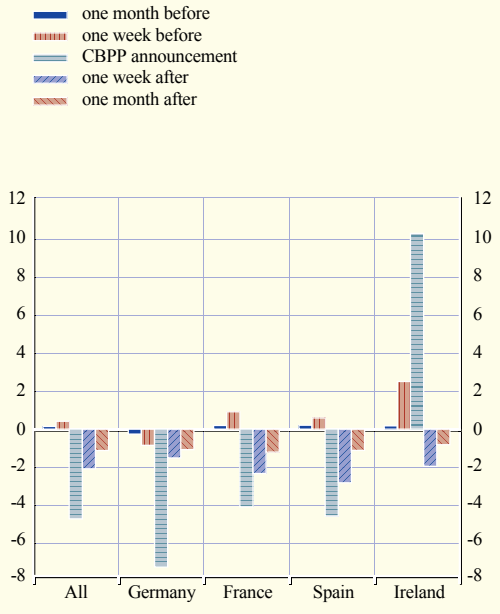
This suggests that the announcement, together with the first day of interventions, was rather effective. However, it needs to be taken into account that additional decisions with a potential

14 At the same time, some non-standard measures aimed primarily at the money market that had been phased out early 2010 were re-introduced when the sovereign debt crisis erupted.

15 For more details, see the box entitled "Additional measures decided by the Governing Council", *Monthly Bulletin*, ECB, May 2010. See Section 2.1 of this article for a discussion of the ways in which malfunctioning sovereign bond markets may adversely affect the monetary policy transmission process.

Chart 7 Average daily changes in covered bond swap spreads around the date the covered bond purchase programme was announced

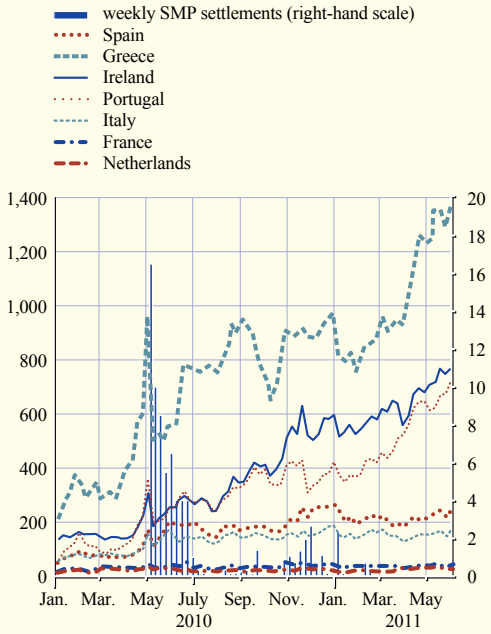
(basis points)



Sources: Thomason Reuters and ECB calculations.
Notes: The chart presents the average daily changes in the covered bond spread over the five-year euro swap computed for the time windows from 1 April to 6 May 2009 ("one month before"), 30 April to 6 May 2009 ("one week before"), 6 May to 7 May 2009 ("CBPP announcement"), 7 May to 14 May 2009 ("one week after") and 7 May to 5 June 2009 ("one month after"). The covered bond yields are iBoxx country indices.

Chart 8 Ten-year government bond yield spreads vis-à-vis German government bond yields and weekly SMP settlements

(weekly data; basis points; EUR billions)



Sources: Thomson Reuters and ECB.
Note: Weekly SMP settlements until 12 July 2010 refer to weekly net settled amounts as announced in the weekly liquidity-absorbing operations. Data from 19 July onwards refer to weekly settled purchases excluding transactions from maturing securities and amortisation.

financial market impact were taken in the weekend of 8 and 9 May, including additional commitments by some EU Member States to bring forward their budget consolidation and the agreement of European governments on the establishment of the European Financial Stability Facility. Moreover, the effectiveness of SMP interventions cannot be assessed solely on the basis of observed bond spreads. For instance, the mere possibility of bond market interventions may have contributed to limiting contagion spreading from the countries directly affected by the sovereign debt crisis to other countries, which would have implied a stronger hampering of the monetary transmission process in the euro area as a whole if the SMP had not been in place. Since July 2010, the levels of SMP purchases have been markedly lower, although the volatility of bond spreads has remained elevated.

Overall, the SMP proved very important in contributing to a better transmission of monetary policy to the euro area as a whole. This role was particularly crucial at the beginning of the programme's implementation, when it also contributed to keeping contagion contained, and at several points in time over the past 12 months. The ECB provided a solid anchor for stability and confidence, which was crucial for the economic recovery in the euro area.

3 CONSIDERATIONS ON THE PHASING-OUT OF NON-STANDARD MEASURES

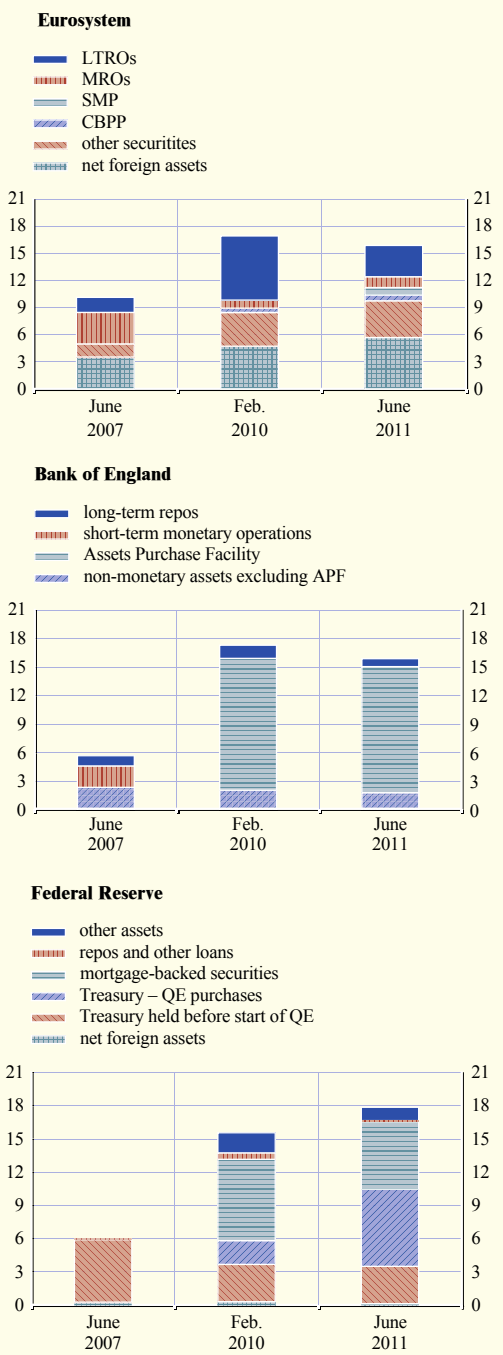
The ECB's non-standard monetary policy measures were designed with consideration of their "exit" in mind. This premise required implementing measures that would limit constraints on future monetary policy decisions. The measures operated primarily with banks through repurchasing agreements of limited duration without automatic extensions after expiration. In this way, the exposure of the ECB to the risks inherent to the underlying securities remained contained, and responsibility for financing the wider economy remained vested in the financial sector. The credit support measures thus addressed solely the banks' funding conditions and were as such distinct from quantitative easing practised by other major central banks. Quantitative easing measures entail purchasing bonds from the open market with the primary aim of lowering bond market yields by reducing the term premia. Comparing the balance sheet of the Eurosystem with that of the Bank of England and the US Federal Reserve reveals the far larger scale of bond market interventions undertaken in the form of outright purchases in both the United Kingdom and the United States (see Chart 9), which can partly be attributed to the stronger focus on a market-based financing of the private sector in these countries.

The ECB's non-standard measures, by contrast, operated mainly through an expansion of the existing operational framework, with lengthened maturities and an extended list of collateral, and relatively limited amounts of outright purchases. The implication is that the ECB has retained a high degree of flexibility in its future decisions because most of the measures taken can be easily unwound once normal financial conditions are re-established in a self-sustained manner. The three one-year LTROs stand as an example: they were not renewed upon expiry, which led to an overall reduction and normalisation of the outstanding maturity for the refinancing operations (see Chart 2).

The different character of the ECB's non-standard measures also has implications for the size of the central bank balance sheet. Its relative increase during the crisis is more limited than in the case of central banks that intervened predominantly in the form of asset purchases, as in the United States and the United Kingdom.

Chart 9 Balance sheets of the Eurosystem, the Bank of England and the Federal Reserve

(percentages of GDP)



Sources: European Central Bank, Bank of England, Federal Reserve.
Note: GDP for the first quarter of 2011 was used to calculate the June 2011 figures.

Looking forward, the ECB's non-standard measures will continue to be phased out in line with the ongoing normalisation of conditions in financial intermediation relevant to the transmission mechanism. Their withdrawal will be gradual so as to continue to ensure an effective transmission of the monetary policy stance. Decisions on the phasing-out of non-standard measures can be taken independently from changes in key ECB interest rates, given their complementary nature. This became evident in April and July 2011 when key ECB interest rates were raised by 25 basis points in each case and the non-standard measures in place were retained.

In deciding on the size and speed of the unwinding of non-standard measures, account has to be taken of the fact that the longer non-standard measures are in place – especially at very low interest rates – the higher is the risk of introducing distortions and creating incentives for excessive risk-taking, which would ultimately lead both to the creation of financial imbalances and to risks to price stability over the medium term. Offering large amounts of liquidity to individual banks at very low rates for an extended period of time also entails the risk of delaying necessary balance sheet adjustments and thus hampering medium-term economic growth.

In particular, the ECB's liquidity support for the banking sector cannot replace the measures that need to be taken by national governments, regulatory bodies and the financial sector itself to ensure the solvency of individual banks and the sustainability of the banking sector's business models, also at higher interest rates. Improving the resilience of balance sheets across all sectors, including households, non-financial and financial corporations as well as governments, is a key factor for healthy and sustainable economic growth in the euro area. The ECB shapes the overall financing conditions in the economy through its monetary policy stance, and it cannot and should not assume responsibilities that fall into the domain of regulatory or fiscal bodies.

4 LESSONS LEARNED AND CONCLUSIONS

Three main lessons can be learned from the ECB's experience with its non-standard monetary policy measures.

First, the focus of the non-standard measures on the money market and on banks' funding proved instrumental in preserving the monetary policy transmission process in the euro area. This is particularly true for the comprehensive fulfilment of banks' demand for central bank liquidity at fixed rates against collateral. It allowed flexibility in the allotment of liquidity, taking account of very heterogeneous liquidity needs across banks, and sharply reduced their funding uncertainty in terms of quantities, interest rates and maturities. In addition, available evidence suggests that relatively small-scale but targeted measures directed at malfunctioning segments of the securities market proved to be successful. The CBPP triggered new issuance in the covered bond market and reduced spreads in the secondary market, thereby improving the funding side of banks, while the SMP contributed to containing contagion, which would otherwise have severely impaired the transmission process in the euro area.

Second, the broad-based operational framework adopted since the introduction of the euro in 1999 ensured the flexibility necessary for the ECB to pursue its objective of maintaining price stability over the medium term. Most of the non-standard measures adopted by the ECB required only changes to the parameters of its existing operational framework for monetary policy implementation. This contributed to instilling confidence and reducing uncertainty, thereby facilitating the maintenance of price stability.

Third, the course of the ECB's monetary policy was never constrained by non-standard measures. The ECB did not engage in large programmes of outright asset purchases, and did not give any guidance on the future path of policy rates. This has allowed it to retain great flexibility in adjusting its policy to unanticipated economic and financial developments in order to maintain price stability.

The decisions of April and July 2011 to increase key ECB interest rates by 25 basis points in each case, while keeping the non-standard measures in place, reflect flexibility in the adjustment of standard and non-standard measures. Looking forward, the monetary policy stance will be adjusted in line with the risks to price stability over the medium term, while the timing and pace of the phasing-out of non-standard measures will be decided on the basis of the progress made in the self-sustained normalisation of the transmission mechanism. It is essential, however, that all sectors – households, companies and financial corporations, as well as governments – make rapid headway in further repairing and strengthening their balance sheets as a precondition for healthy and sustainable economic growth in the euro area.